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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/525,899

02/25/2005

Hong Li

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PPG INDUSTRIES INC
INTELLECTUAL PROPERTY DEPT
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EXAMINER

JOHNSON, KEVIN M

ART UNIT

PAPER NUMBER

1793

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/525,899	Applicant(s) LI ET AL.	
	Examiner KEVIN M. JOHNSON	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 14 and 15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/2/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-13, drawn to a glass composition.

Group II, claim(s) 14, drawn to a glass fiber cloth.

Group III, claim(s) 15, drawn to a circuit board.

2. The inventions listed as Groups I-III do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: the glass composition required is known in the art as taught by Wallenberger (US 2003/0224922).

3. During a telephone conversation with Dennis Millman on 3/25/2008 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-13.

Affirmation of this election must be made by applicant in replying to this Office action.

Claims 14 and 15 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Objections

5. Claim 12 is objected to because of the following informalities: the upper range for the ratio $\text{RO}/(\text{SiO}_2 + \text{Al}_2\text{O}_3)$ is listed as "0.3.8", for the purposes of examination this has been interpreted as 0.38. Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. Claims 6 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims require a ratio of Al_2O_3 to SiO_2 of 0.44-0.50, but this range can not be attained by a composition fitting the requirements of claims 5 and 8 respectively. The highest ratio of Al_2O_3 to SiO_2 possible according to claim 5 is 0.30, and according to claim 8 is 0.29, neither of which meets the minimum required value of 0.44. For the purposes of examination the lower limit has been interpreted to be 0.3 for claim 6 and 0.29 for claim 9.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallenberger (US 2003/0224922).

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In regards to claims 1-4, 7, 8 and 10-11, Wallenberger teaches a glass fiber forming composition having 52-62% SiO_2 , 0-2% Na_2O , 16-25% CaO , 8-16% Al_2O_3 , 0.05-0.8% Fe_2O_3 , 0-2 % K_2O , 1-5% MgO , 0-5% B_2O_3 , 0-2% TiO_2 and 0–1% F (abstract) where all amounts are in wt-%. It is also disclosed that SrO may be contained in an amount up to 2% (paragraph 17) and that SO_3 is beneficially included in the glass composition (paragraph 19). The composition taught by Wallenberger preferably does not contain any fluorine (paragraph 18). Wallenberger teaches that the maximum forming temperature for a glass of his invention is 1240°C with a forming window of at least 50°C .

It would have been obvious to one skilled in the art at the time of the invention to increase the B_2O_3 content of the glass taught by Wallenberger to between 5 and 6%, this would have been motivated by the suggestion that higher B_2O_3 contents would yield lower forming temperatures and that a B_2O_3 content of up to 10% is common in glass fibers (paragraph 16). It would have been further obvious to one skilled in the art that the increased B_2O_3 content would result in forming temperatures below 1190°C . The overlapping ranges taught by Wallenberger constitute a case of prima facie obviousness. See MPEP 2144.05.

In regards to claims 5 and 12, it would have been obvious to one skilled in the art at the time of the invention to select a composition that would meet the required values for RO content and for the ratios listed in the instant claim. This would have been conducted as a matter of routine optimization of the melt properties of the glass, as

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Wallenberger teaches that such ratios are directly related to the melt properties of the glass, see Figures 1 to 6.

In regards to claims 6 and 9, it would have been obvious to one skilled in the art at the time of the invention to select a composition from the ranges taught by Wallenberger that would satisfy the requirements of the instant claims through the process of routine optimization of the melt properties of the composition. This would be supported by the teaching of Wallenberger that the RO/SiO₂ ratio is directly related to the melt properties of the glass composition (Figures 1-6).

In regards to claim 13, it would have been obvious to one skilled in the art at the time of the invention that a glass with a composition as taught by Wallenberger with a higher B₂O₃ content as suggested would have a forming temperature of less than 1185°C. This would be supported by the teaching of Wallenberger that additional B₂O₃ content will lower the forming temperature of the glass, and the commercial glass in table G of Wallenberger that contains 6.1% B₂O₃ and has a forming temperature of 1172°C.

Conclusion

11. All claims are rejected. No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEVIN M. JOHNSON whose telephone number is (571)270-3584. The examiner can normally be reached on Monday-Friday 7:30 AM to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jerry A Lorengo/
Supervisory Patent Examiner, Art Unit 1793

KMJ